

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-24 are presently active in this case. The present Amendment amends Claim 10 without introducing any new matter or raising new issues.

The outstanding Office Action objected to Claim 10 under 37 C.F.R. §1.75(a) as failing to distinctly claim the subject matter. Claims 1, 3-10 and 12-24 were rejected under 35 U.S.C. §102(e) as anticipated by Lelong et al. (U.S. Patent No. 5,444,478, herein “Lelong”). Claims 2 and 11 were rejected under 35 U.S.C. §103(a) as unpatentable over Lelong in view of Lee (U.S. Patent No. 6,507,366).

In response to the objection to Claim 10, Claim 10 is amended to recite “tangible object” instead of “original image.” In view of the amendment to Claim 10, it is believed that all pending claims are definite and no further rejection on that basis is anticipated. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work with the Examiner in a joint effort to derive mutually acceptable language.

In response to the rejection of Claims 1, 3-10 and 12-24 under 35 U.S.C. §102(e), Applicants traverse the rejection and request reconsideration of the rejection, as next discussed.

Briefly recapitulating, Claim 1 relates to an image processing method, configured to correct image distortions caused by oblique imaging in which a tangible object on an object plane is taken from different oblique directions to obtain a plurality of partially overlapping images. The image processing method includes: determining a feature point of one of the plurality of partially overlapping images corresponding to a common location of the tangible object, shared by the plurality of partially overlapping images, and determining a matched

point of one of the other partially overlapping images corresponding to the feature point *so that a direction of the tangible object plane is calculated based on the feature point and the matched point*; selecting one of the plurality of partially overlapping images as a standard image whose image distortions are to be corrected; and generating a distortion-corrected image *on a projection plane by projecting the standard image onto the projection plane based on the direction of the tangible object plane* such that image distortions in the standard image are eliminated. Independent Claims 6, 7-9, and 15-16 disclose similar features in the context of an image processing method (Claim 6), an image processing apparatus (Claims 7 and 9), and a computer-readable storage medium (Claims 15 and 16).

Turning now to the applied references, Lelong describes a method of processing images to obtain a target virtual image I_o from adjacent source images.¹ Lelong further describes that source images $I_1 - I_n$ are all projected onto an image plane I_o of a virtual camera C_o , so as to obtain the final target image I_o . Lelong's virtual camera C_o orientation is defined by angles Φ_o, θ_o, ψ_o ,² and Lelong uses predefined parameters of the virtual camera, since “[t]he parameters Φ_o, θ_o, ψ_o and z_o of the virtual camera are available in the storage module 210.”³ Lelong also explains that the “virtual camera C_o is arranged in such a way that its view point is common with or close to the common view point P of the real cameras,”⁴ and also explains that a single landmark point with the coordinates P_x, P_y and P_z is used to define the parameters of the target image plane I_o .⁵ Accordingly, Lelong fails to teach or suggest that a direction of the tangible object plane is calculated based on the feature point and the matched point, as recited in Applicants' Claim 1. Lelong's target image plane I_o is always orthogonal to an optical axis P_{Z_o} , that leads through a common point P , from which position all the source images are taken, as one of ordinary skill in the art can see from

¹ See Lelong in the Abstract.

² See Lelong at column 8, lines 28-39.

³ See Lelong at column 12, lines 19-23.

⁴ See Lelong at column 10, lines 32-40 and in Figure 1A.

⁵ See Lelong at column 18, lines 1-4, and lines 55-58, at column 12, lines 47-66, and in Figures 5A and 5B.

Lelong's Figures 1A, 5A and 5B and further explained at column 6, lines 38-39 of Lelong.

In Claim 1, however, the direction of the *tangible* object plane is calculated, and the tangible object plane is not bound to the direction of an optical axis of a camera view that leads through a common point P.

In addition, Lelong fails to teach or suggest the generating of a distortion-corrected image *on a projection plane by projecting the standard image onto the projection plane based on the direction of the tangible object plane*, as further recited in Claim 1. As explained above, since Lelong will project all the images to a virtual plane that is orthogonal to an optical axis that traverses a common view point P,⁶ Lelong cannot project the standard image onto the projection plane based on the direction of the tangible object plane.

Applicants further respectfully submit that Lelong fails to teach or suggest all the features of Applicants' dependent claims.

For instance, regarding dependent Claim 5, Lelong fails to teach or suggest that an image is automatically selected as the standard image based on a calculated direction of the object plane for each of the partially overlapping image. Lelong never calculates an object plane, but merely uses a virtual plane Io of a virtual camera view Co.⁷ Accordingly, Applicants also respectfully request reconsideration of Applicants' dependent claims.

Regarding the reference Lee, relied upon by the outstanding Office Action to form a 35 U.S.C. §103(a) rejection, this reference fails to remedy the deficiencies of Lelong. Lee is concerned with the automatic tracking of a moving object,⁸ and does not teach anything regarding the calculation of a direction of the tangible object plane. Accordingly, even if we assume that the combination of Lelong and Lee is proper, the combination fails to teach or

⁶ See Lelong at column 6, lines 31-52.

⁷ See Lelong at column 8, lines 28-39, and in Figure 1A.

⁸ See Lee in the Abstract, and in Figure 2A and 2B.

suggest all the features of Applicants' independent Claim 1, and therefore, Applicants respectfully request reconsideration of the rejection under 35 U.S.C. §103(a).

Independent Claims 6, 7-9, and 15-16 recite features analogous to the features recited in independent Claim 1. Accordingly, for the reasons stated above for the patentability of Claim 1, Applicants respectfully submit that the rejections of Claims 6, 7-9, and 15-16 are also believed to be overcome in view of the arguments regarding independent Claim 1.

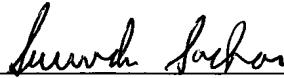
The present amendment is submitted in accordance with the provisions of 37 C.F.R. §1.116, which after Final Rejection permits entry of amendments canceling rejected claims or complying with requirements of form set forth in a previous Office Action. As the present amendment merely amends Claim 10 to overcome the objection under 37 C.F.R. 1.75(a) as suggested in the previous Office Action, it is respectfully requested that the present amendment be entered.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-24 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

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